

CLAIMS

1. Device for coiling a windable long, metal product (10), comprising a mandrel (12) having a substantially circular transverse section and rotating around a horizontal, vertical or inclined axis, a containing element (13) to contain said metal product (10), arranged in correspondence with said mandrel (12) and substantially orthogonal to said axis, and at least a guide and containing device (15, 16) able to be driven between a first working position wherein it cooperates with said mandrel (12), and a second inactive position wherein it is arranged distant from said mandrel (12), characterized in that said containing element (13) comprises an annular channel (14) which is made in proximity with an outer surface of said mandrel (12) and is coaxial with the axis of rotation of said mandrel (12), and in that said guide and containing device (15, 16) comprises a groove (20) that is able to define an accompanying guide for said metal product (10) along an outer circumference of said mandrel (12) towards said annular channel (14) and coaxial with said annular channel (14), when said guide and containing device (15, 16) is in said first working position.
2. Device as in claim 1, characterized in that said annular channel (14) has a substantially rectangular transverse section.
3. Device as in claim 1, characterized in that said annular channel (14) has a substantially trapezoid section.
4. Device as in claim 1, characterized in that said guide and containing device comprises at least a flap (15).
5. Device as in claim 4, characterized in that said guide and containing device comprises another flap (16) arranged diametrically opposite said at least one flap (15).
6. Device as in claim 5, characterized in that said at

least one flap (15) and said other flap (16) constitute, in said first working position, a lateral cover to said annular channel (14).

7. Device as in any claim hereinbefore, characterized in that a flange (30) is applied on said containing element (13) substantially perpendicular to said mandrel (12) and shaped so as to have an annular tooth (31) substantially coaxial with said mandrel (12), said annular tooth (31) defining at the lower part said annular channel (14).

8. Device as in claim 7, characterized in that said annular tooth (31) is slightly convergent towards the outside.

9. Device as in claim 7 or 8, characterized in that said annular tooth (31) has a thickness (H) substantially equal to the diameter of said rolled product (10), or to a multiple thereof.

10. Device as in claim 7, 8 or 9, characterized in that the protrusion (L) of said annular tooth (31) is substantially equal to a value of between 1.5 and 2 times the diameter of said rolled product (10).

11. Device as in any claim from 7 to 10 inclusive, characterized in that said flange (30) is interchangeable according to the size of said rolled product (10).

12. Device as in any claim from 7 to 11 inclusive, characterized in that said flange (30) is made of material of great hardness.

13. Method for coiling a long metal product (10), performed by means of a coiling device which comprises a mandrel (12) having a substantially circular transverse section and rotating around a horizontal, vertical or inclined axis, an containing element (13) to contain said metal product (10), arranged at one end of said mandrel (12) and substantially orthogonal to said axis, and at least a guide and containing device (15, 16), able to be driven between a

first working position wherein it cooperates with said mandrel (12), and a second inactive position wherein it is arranged distant from said mandrel (12), characterized in that it comprises the following steps:

- 5 - a first step wherein a leading end of said metal product (10) is inserted into a groove (20) of said guide and containing device (15) arranged in said first working position to guide said metal product (10) along an outer circumference of said mandrel (12);
- 10 - a second step wherein said metal product (10) is guided by said groove (20) inside an annular channel (14) made on said containing element (13) in proximity with an outer surface of said mandrel (12) and coaxially with said axis of rotation of said mandrel (12);
- 15 - a third step wherein an initial segment of said metal product (10) is gripped and clamped in said annular channel (14) by means of friction forces generated between said metal product (10) and the walls of said annular channel (14);
- 20 - a fourth step wherein said metal product (10) is wound onto said mandrel (12) for a pre-determined segment of length;
- a fifth step wherein said guide and containing device (15) is taken from said first working position to said
25 second inactive position; and
- a sixth step wherein said metal product (10) is wound for the remainder of its length.

14. Method as in claim 13, characterized in that during said first step, said metal product (10) is inserted into
30 said groove (20) by means of a distributor of said metal product (10).

15. Method as in claim 14, characterized in that during said first step, said mandrel (12) is in rotation around

its own axis.

16. Method as in claim 13, characterized in that said segment of pre-determined length is between a fraction of one spiral and three spirals.